REMARKS

Claims 20 and 24 through 35 were rejected in the Office Action dated September 23, 2011. Claims 20, 29 through 31, 33, and 34 are currently amended. Claims 24 and 35 are cancelled. Claims 20 and 25 through 34 are pending. Reconsideration is respectfully requested.

I. Rejection of Claims under 35 U.S.C. § 112

Claims 20, 24, 29, 30, 31, and 33 through 35 were rejected under 35 U.S.C. § 112, second paragraph. Regarding claim 20, the Examiner indicated that the phrase "a plug that may be pushed forward" is unclear. Claim 20 has been amended to recite "a plug that is pushed forward . . ." and is not unclear under 35 U.S.C. § 112. It is respectfully requested that the rejection be reconsidered.

Regarding claims 29, 30, and 31 the Examiner indicated that the terms "sleeve," "plunger," "piston," and "material components" are unclear. Claim 29 is currently amended to replace "a sleeve" with "the sleeve," claim 30 is currently amended to replace "a plunger" and "a piston" with "the plunger" and "the piston," respectively, and claim 31 is currently amended to replace "material components" with "the material components." These terms are not unclear under 35 U.S.C. § 112, and it is respectfully requested that these rejections be reconsidered.

Regarding claim 33, the Examiner indicated that the term "gel/liquids" is unclear. Claim 33 is currently amended to replace "etching gel/liquids" with "etching gels; etching liquids," and is not unclear under 35 U.S.C. § 112. It is respectfully requested that this rejection be reconsidered.

Regarding claim 33 and 34, the Examiner indicated that the claims should be put into proper format for a Markush claim. Claims 33 and 34 are currently amended as indicated above, and are not unclear under 35 U.S.C. § 112. It is respectfully requested that this rejection be reconsidered.

Although the Applicants do not agree with the rejections of claims 24 and 35, those claims have been cancelled, rendering the rejections of these claims moot.

II. Rejection of Claims under 35 U.S.C. § 103

Claims 20 and 24 through 35 were rejected under 35 U.S.C. § 103(a) as unpatentable over each of U.S. Patent No. 5,735,437 (Broyles et al.), U.S. Patent No. 6,007,515 (Epstein et al.), and U.S. Patent Publication No. 2004/0024353 (Petersen et al.), (together, the Primary References), in combination with one of U.S. Patent No. 3,729,032 (Tischlinger et al.), U.S. Patent No. 4,141,474 (Nilson), U.S. Patent No. 2,628,004 (Schlicksupp), and U.S. Patent No. 6,616,012 (Dark), (together, the Secondary References). Certain dependent claims were rejected in view of various additional references. The Examiner indicated that the Primary References each teach every limitation of independent claim 20 with the exception of a self-opening closure system which seals the front ends of the compartments and opens when the plunger is advanced, and that the self-opening closure system includes a plug that may be pushed forward upon movement of the plunger toward the front end of the cartridge. The Examiner concluded that the Secondary References each include these features, and that it would have been obvious for one of skill in the art to combine any Primary Reference with any Secondary Reference to arrive at the claimed invention. Applicants respectfully disagree with the rejections, but have amended independent claim 20 to clarify various features of the invention in an effort to expedite prosecution. The Examiner's proposed combinations do not result in a device that includes each limitation of the currently amended claims, and it is therefore requested that the rejections be reconsidered.

Tischlinger et al. describes a liquid dispenser having a barrel, a plunger closing a rear end of the barrel, and a forward seal 41 closing a forward end of the barrel. Abstract. The barrel includes an enlarged bypass chamber or cavity which allows fluid contained in the barrel to flow around forward seal 41 and out through an orifice or mouth 19 of the barrel when the forward seal is pushed into the bypass chamber, as shown in Figure 2, reproduced below. Col. 4, lines 46-66. The device is said to be suitable for use with an injection needle, for example, or without a needle, such as for "oral drug dispensing uses." Col. 4, lines 10-25.

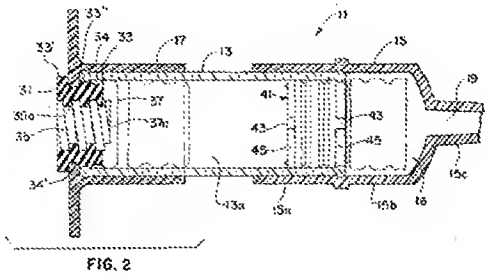


FIG. 2

Nilson describes a closure for a tube having a spider member 16 including a support 20 and a valve stem 22 and having a plurality of cut out areas 21 to allow passage of material, and a diaphragm member 18. Col. 2, lines 49-58. The diaphragm 18 is said to be inherently biased such that the diaphragm forms a secure closure between the lips 34 of the diaphragm and the stem 22, as shown in Figure 4, reproduced below. Col. 3, lines 57-62. Application of pressure on the tube by a user causes axial movement of the diaphragm such that the lip 34 is separated from the stem 22 and the material may be dispensed through an opening between the stem 22 and the lip 34. Col. 5, lines 3-12.

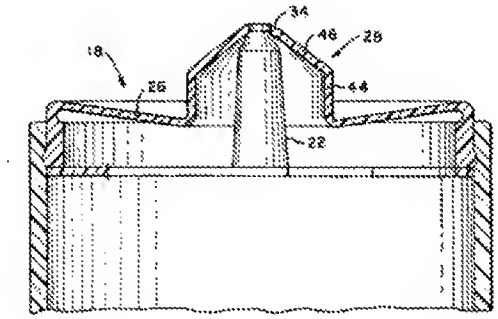
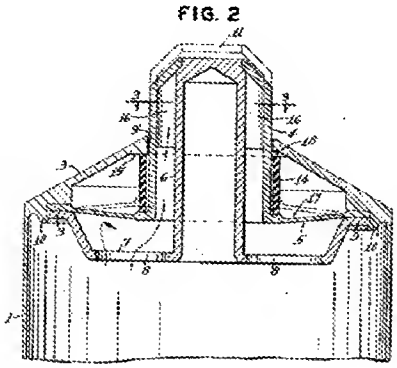


Fig. 4

Schlicksupp describes a closure for a tube having a tubular member 4 connected to a diaphragm 5, and a fixed or cylindrical member 6 disposed coaxially within the tubular member 4. Col. 2, lines 20-36. The tubular member includes an opening 11 that is closed an end of cylindrical member 6. Col. 2, line 49 – col. 3 line 8. When pressure is applied to the tube, the diaphragm 5 and outer member 4 are said to move forward, as indicated by the broken lines in Figure 2 reproduced below, while the cylindrical member 6 remains stationary, such that material may pass through the opening 11. Col. 3, lines 38-56.



Dark describes a valve having a cap, a retainer having an upwardly extending plug, and a dispensing valve body having a dispensing orifice. Abstract. When the dispensing valve body is positioned on the retainer, the dispensing orifice is sealed against an upwardly extending plug. Abstract. When pressure is applied, the dispensing orifice perimeter 68 is lifted out of contact with the upwardly extending plug 44 such that the contents may flow through the orifice 67. Col. 6, lines 37-46.

The combination of any of the Primary References, with the closure system of Tschlinger, for example, does not describe or suggest a self-opening closure system comprising a plug positioned within each *outlet* of the at least two compartments that is pushed forward upon movement of the plunger toward the front end of the cartridge. As described by the present

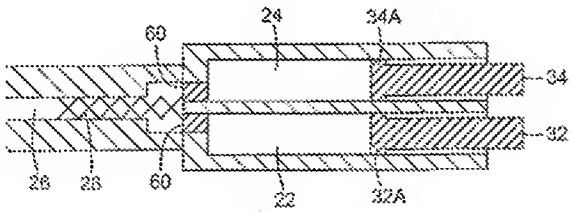


FIG. 4A

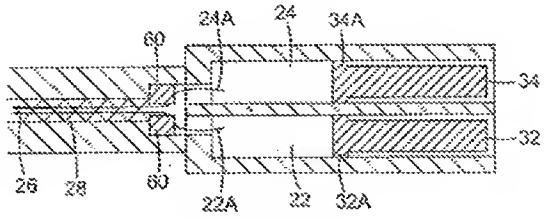


FIG. 4B

application, and one embodiment of which is shown in Figures 4A and 4B reproduced above, an exemplary self-opening closure system comprises plugs which are adapted to fit within outlets

22a, 24a of the front ends of the material compartments 22, 24. Upon movement of a plunger toward the front end of the cartridge, the plugs 60 are pushed forward thereby opening the outlets 22a, 24a and enabling the material components in the compartments to flow into mixing barrel 26. The forward seal 41 of Tischlinger et al., however, is *not* positioned within an *outlet* of the compartment as required by claim 20. Rather, the forward seal 41 is positioned within the *barrel*. Liquid contained in the barrel may be dispensed only when the plug is pushed into a bypass chamber or cavity such that the liquid may flow around the forward seal 41 and through an orifice 19. Even after the liquid has been dispensed, the forward seal 41 remains in the compartment. Not only does Tischlinger et al. not disclose a plug positioned within an outlet of a compartment, one of skill in the art would not consider adding such a feature because it would destroy the functionality of the device of Tischlinger et al. For example, if the forward seal 41 were positioned in orifice 19, the seal would have nowhere to go and would prevent the contents of the barrel from being dispensed through an injection needle attached to the end 15c of the device. If the device of Tischlinger et al. were used without an injection needle, the device would similarly not properly function because the plug would be dispensed along with the liquid. Such a device would pose a danger to a patient when the device is used for "oral drug" delivery, for example, (col. 4, lines 14-25) or result in wasted liquid if the plug must first be ejected before the device could be used to deliver the liquid. Accordingly, claim 20 is not unpatentable under 35 U.S.C. § 103(a) because the proposed combinations of the devices of the Primary References with features of Tischlinger et al., do not result in a device including each element of amended claim 20, and would not logically be considered by one of skill in the art. It is respectfully requested that the rejection be reconsidered.

The combination of a device of one of the Primary References with the closure system of Nilson similarly does not describe or suggest a self-opening closure system comprising a *plug positioned within each outlet* of the at least two compartments that is *pushed forward upon movement of the plunger toward the front end of the cartridge*. Rather, Nilson describes a closure having a diaphragm that forms a seal between a lip of the diaphragm and a valve stem, and that is opened when application of pressure on the tube by a user causes axial movement of the diaphragm such that the lip 34 is separated from the stem 22. Col. 5, lines 3-12. Even if the valve stem 22 of Nilson were characterized as a plug, the valve stem 22 is not "pushed forward,"

as required by claim 20. It is the diaphragm 18 that moves forward while the valve stem 22 remains substantially stationary. If the valve stem 22 moved forward, the lip 34 would not be able to separate from the valve stem 22, and the device would not properly function. Accordingly, claim 20 is not unpatentable under 35 U.S.C. § 103(a) in view of the proposed combinations with the device of Nilson. Schlicksupp and Dark describe closures for a container similar to that of Nilson, and also do not describe a *plug* that is positioned *within an outlet*, and that is *pushed forward upon movement of the plunger toward the front end of the cartridge.* Claim 20 is therefore patentable over combinations including the devices of Schicksupp and Dark for at least the same reasons provided above with respect to Nilson.

Ultimately, claim 20 is not unpatentable under 35 U.S.C. § 103(a) in view of the Primary References in combination with one of the Secondary References because the proposed combinations do not include each limitation of amended claim 20. It is respectfully requested that the rejections be reconsidered.

Claims 24 through 34 depend from or include each element of independent claim 20. Lokhandwala et al., Fukui, Simonton, and Ferguson do nothing to remedy the deficiencies of the secondary references described above with reference to claim 20, and claims 24 through 34 are therefore similarly in condition for allowance. It is respectfully requested that these rejections also be reconsidered.

III. Conclusion

All outstanding rejections are believed to have been met and overcome, and a notice of allowance for all pending claims is respectfully solicited. If a telephone discussion with the Applicants' representative would be helpful in resolving any remaining matters related to this application, the Examiner is invited to contact the undersigned at 651-736-4050.

Respectfully submitted,

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Date

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